California Statewide Interoperable Communications

Executive Committee

CALIFORNIA
STATEWIDE COMMUNICATIONS
INTEROPERABILITY PLAN

October 2018

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LETTER FROM THE SWIC

Greetings,

I am pleased to present to you the 2018 California Statewide Communications Interoperability Plan (SCIP). This SCIP represents California's continued commitment to improving emergency communications interoperability and supporting the public safety practitioner community throughout the state. In addition, this updated SCIP is also required by the recently released FY2018 Department of Homeland Security (DHS) grant guidelines, which require each state to update its SCIP and designate a full time Statewide Interoperability Coordinator (SWIC).

With support from the DHS' Office of Emergency Communications (OEC), representatives from the California Interoperable Communications Executive Committee (CalSIEC) and state and local agencies from across the state collaborated to rewrite the SCIP to include actionable and measurable goals and initiatives. These goals and initiatives focus on governance, technology, training and exercises, outreach, information-sharing and life-cycle funding, and are designed to support our state in planning for new technologies and navigating the ever-changing emergency communications ecosystem. They also include priorities and activities identified by California's delegation during the National Governors Association Northwest Regional Meeting held in Portland, Oregon in May 2018. As a result of the updates for 2018, you will find both new and ongoing interoperability initiatives in the SCIP. These SCIP initiatives also complement the goals in the California Governor's Office of Emergency Services' (CalOES) 2014-2018 "Strategic Plan Summary" as interoperable communications are integral to each of its strategic goals.

California's emergency responders have demonstrated their ability to protect lives and property in the face of disasters and emergencies. For the next three-to-five years, this strategic plan will guide our efforts to protect over 39 million people and the California communities in which they reside by integrating advances in interoperable emergency communications technology into the operational needs of those who rely upon these technologies.

Thank you to the public safety practitioners who continue to participate in the planning and implementation of the strategic initiatives outlined in the SCIP, as together we work to remain a nationwide model for statewide interoperability.

Sincerely,

Budge Currier,
California Statewide Interoperability Coordinator (SWIC)

EXECUTIVE SUMMARY

On June 5-6, 2018, California hosted a two-day Enhanced Statewide Communications Interoperability Plan (SCIP) Workshop to develop goals to improve interoperable emergency communications in five key areas: Governance, Technology, Funding and Sustainment, Training, and Outreach and Education. California's SWIC, Budge Currier, designed and conducted the SCIP Workshop after attending the National Governor's Association (NGA) Regional Meeting in Portland in May 2018. During the NGA meeting, participants identified action items to support efforts to revitalize the state's governance structure, which were then utilized in the planning for the SCIP Workshop. Participants at the SCIP Workshop included leaders from California Governor's Office of Emergency Services (CalOES), California Statewide Interoperability Executive Committee (CalSIEC) and Planning Areas, California First Responders Network Board (CalFRN), Public Safety Radio Strategic Planning Committee (PSRSPC), CalOES Broadband Services Division (BSD), 9-1-1 Advisory Board, Los Angeles Regional Interop Communications Systems, and law enforcement, fire, and other emergency responders from Butte, Orange, Placer, Plumas, Riverside, San Diego, San Joaquin, and Santa Clara Counties. Stakeholders leveraged the successes and gaps, previously identified during the engagements, to develop SCIP strategies and tactics, as well as the state's participation in the NGA Northwest Regional Meeting in Portland in May 2018, to account for planning activities involving new technologies and the emergency communications ecosystem, and incorporate national efforts and strategies as needed.

The California SCIP is a stakeholder-driven, multi-jurisdictional, and multi-disciplinary statewide strategic plan to enhance interoperable emergency communications. The SCIP is a critical mid-range (three-to-five years) strategic planning tool to help California prioritize resources, strengthen governance, identify future investments, and address interoperability gaps. This SCIP complements, and is an adjunct to, the California Governor's Office of Emergency Services' (CalOES) 2014-2018 Strategic Plan Summary.

California utilized a collaborative and objective-oriented approach to bring together key stakeholders from across disciplines, agencies, and jurisdictions within the state to participate in the development of a new strategic document that would address the need to keep pace and adapt to an ever-evolving emergency communications ecosystem. Data gathered in advance of the workshop was then assessed during the SCIP workshop to develop new goals and initiatives to help position California to meet today's needs, and to plan for the integration of emerging technologies.

During the SCIP workshop, participants developed goals and objectives to:

- Streamline interoperability planning efforts by reviewing and updating existing policies and procedures to ensure consistency across all operational areas
- Leverage existing technology and facilitate migration towards emerging technologies while increasing coordination for enhanced interoperability
- Utilize training and exercises to guarantee best practices in state interoperability
- Develop a comprehensive approach to share information with elected officials, decision-makers, end users, and the public
- Ensure continual funding for top priorities and coordinate with partners to acquire potential funding to mitigate public safety risk
- Fully integrate statewide programs and initiatives involving broadband technologies, Next Generation 9-1-1 and Alerts and Warnings into the Interoperability eco-system.

The resulting goals and initiatives along with owners, completion dates and measurements are provided within this SCIP.

As mentioned, this updated SCIP supports the fulfillment of requirements included in the FY2018 DHS State Homeland Security Grant Program (HSGP) Notice of Funding Opportunity. It requires that all states and territories update their SCIP by the end of the FY2018 HSGP period of performance (36 months), with a focus on communications resilience/continuity, to include assessment and mitigation of all potential risks.

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INTRODUCTION

Guiding Approach & Principles

Modernization of emergency communications components is increasing the flow of information from the 9-1-1 caller all the way to the emergency responder.

The increased use of data applications, mobile broadband data and Next Generation 9-1-1 will greatly influence incident operations as they become more prevalent and are more widely adopted by emergency responders. When considering and preparing for these changes to the emergency communications' landscape, California developed a new Statewide Communications Interoperability Plan (SCIP), using a holistic approach to strategic planning that incorporates the emergency communications ecosystem based on the SAFECOM Interoperability Continuum.

The broader emergency communications ecosystem consists of many inter-related components and functions, including communications for incident response operations, notifications and alerts and warnings, requests for assistance and reporting, and public information exchange. The primary functions of the emergency communications ecosystem are depicted in the 2014 National Emergency Communications Plan (NECP)[1].

The Interoperability Continuum[2] was developed by SAFECOM and serves as a framework to address challenges and continue improving operable/interoperable and emergency communications. It is designed to assist emergency response agencies and policy makers with planning and implementing interoperability solutions for voice and data communications.

During the California SCIP workshop and preceding engagements, participants considered the core elements of the Continuum when reviewing the current and desired states of interoperability within the state.

The SCIP is maintained by the California Statewide Interoperability Executive Committee (CalSIEC), and managed by the Statewide Interoperability Coordinator (SWIC), who is also responsible for coordinating the implementation of this plan's consensus-based goals and ensuring the SCIP complements the California Governor's Office of Emergency Services (CalOES) 2014-2018 "Strategic Plan Summary."[3]

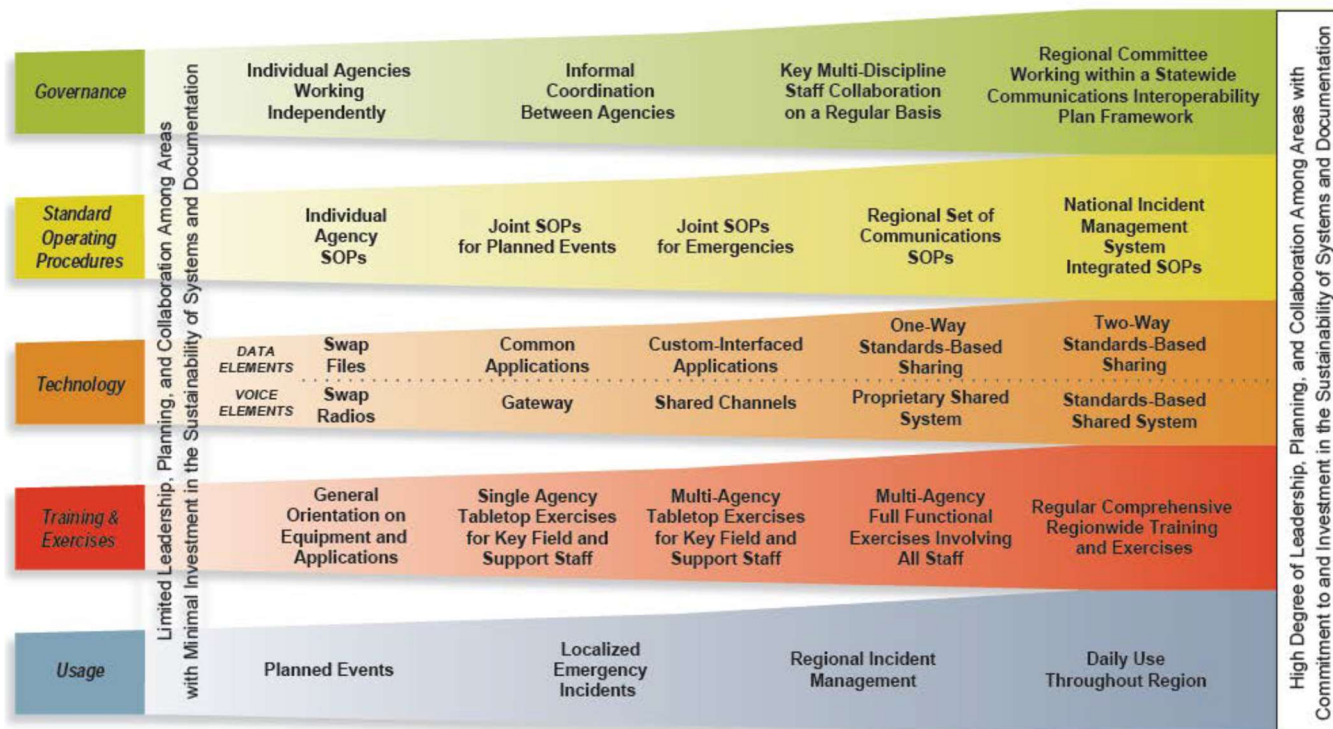
[1] The 2014 National Emergency Communications Plan (NECP)
[2] OEC's Interoperability Continuum
[3] The Cal OES 2014-2018 Strategic Plan Summary

Figure 1: SAFECOM Interoperability Continuum

Governance	Limited Leadership, Planning, and Collaboration Among Areas with Minimal Investment in the Sustainability of Systems and Documentation	Individual Agencies Working Independently		Informal Coordination Between Agencies		Key Multi-Discipline Staff Collaboration on a Regular Basis	Regional Committee Working within a Statewide Communications Interoperability Plan Framework	High Degree of Leadership, Planning, and Collaboration Among Areas with Commitment to and Investment in the Sustainability of Systems and Documentation
Standard Operating Procedures		Individual Agency SOPs	Joint SOPs for Planned Events	Joint SOPs for Emergencies		Regional Set of Communications SOPs	National Incident Management System Integrated SOPs	
Technology		**DATA ELEMENTS** Swap Files	Common Applications	Custom-Interfaced Applications		One-Way Standards-Based Sharing	Two-Way Standards-Based Sharing	
		VOICE ELEMENTS Swap Radios	Gateway	Shared Channels		Proprietary Shared System	Standards-Based Shared System	
Training & Exercises		General Orientation on Equipment and Applications	Single Agency Tabletop Exercises for Key Field and Support Staff	Multi-Agency Tabletop Exercises for Key Field and Support Staff		Multi-Agency Full Functional Exercises Involving All Staff	Regular Comprehensive Regionwide Training and Exercises	
Usage		Planned Events		Localized Emergency Incidents		Regional Incident Management	Daily Use Throughout Region	

Vision & Mission

The Interoperability Continuum elements were referenced when workshop participants revised the SCIP's vision and mission and developed new goals and initiatives.

The following are the revised California SCIP vision and mission statements:

> **Vision**:
>
> *Achieve sustainable statewide interoperable communications.*

> **Mission:**
>
> *Provide strategic direction for interoperable communications and a unified public safety response communications plan that promotes national standards and addresses the unique requirements of emergency responders and designated public service organizations serving the people of California.*

California Enhanced SCIP Overview

- ***Goals & Initiatives.*** Provides an executive summary of the SCIP goals and initiatives and their intended benefits.
- ***Governance.*** Describes the current governance mechanisms for communications interoperability within the state along with successes, challenges, and priorities for improving governance within the evolving landscape.
- ***Technology.*** Describes the core systems used to support public safety communications within the state, and the technological and operational enhancements needed to maintain and enhance interoperability across the emergency communications ecosystem.
- ***Training & Exercises.*** Describes the state's approach to ensuring all stakeholders are continuously trained and up-to-date on relevant policies, procedures, and practices to meet today's needs and to plan for the integration of emerging technologies.
- ***Outreach & Information Sharing.*** Describes collaboration with state, local, tribal, and federal entities.
- ***Life-Cycle Funding.*** Describes the funding sources and allocations that support interoperable communications capabilities within the state, along with methods and strategies for funding sustainment and enhancement into the future.

OVERVIEW OF GOALS & INITITATIVES

California stakeholders identified the following five priorities for public safety interoperable emergency communications:

Governance

Streamline interoperability planning efforts by reviewing and updating existing policies and procedures to ensure consistency across all operational areas

Technology

Leverage existing technology and facilitate migration towards emerging technologies while increasing coordination for enhanced interoperability

Training & Exercises

Utilize training and exercises to guarantee best practices in state interoperability

Outreach & Information Sharing

Develop a comprehensive approach to share information with elected officials, decision-makers, end users, and the public

Life Cycle Funding

Ensure continual funding for top priorities, and coordinate with partners to acquire potential funding to mitigate public safety risk

Goals, Initiatives & Benefits

The following section provides a high-level overview of the California SCIP goals, initiatives, and benefits, and how activities outlined in this SCIP can drive advancements in interoperability capabilities throughout the state.

Goals	Initiatives	Benefits
Streamline Interoperability Planning efforts	Continue coordinated relationships across Planning Areas and with CPRA, NAPCO, CalNENA and other public safety organizations (e.g., CSSA, EMSA, Fire Chiefs, Police Chiefs, etc.) and identify points of contact	Ensures the best possible utilization of resources for interoperable emergency communications
	Identify and document technology needs*	
	Identify technology solutions*	
	Adopt technology to increase participation for information sharing to assess interoperability opportunities (e.g., webinar/video teleconference)	
	Develop and/or implement planning efforts	
Review, update, ensure consistency, and distribute policies and procedures as necessary, to all levels and disciplines (including IT)	Conduct annual review of Cal-IFOG, CLMA (red and blue), CalOES policy documents, and CalSIEC and CalFRN charters to ensure consistency across documents	Supports all efforts to maintain and improve interoperable emergency communications
	Review and update policies and procedures with Planning Areas	
	Ensure communications annex of emergency operations plans are consistent with aforementioned documents	
Develop a common interoperability platform that leverages existing technology and infrastructure, and provides a migration toward emerging technologies*	Identify basic voice interoperability needs based on real-world events*	Ensures the best use of currently available technology, and the proper integration of emerging technologies into California's emergency communications ecosystem
	Establish CalSIEC Technology Working Group focusing on law enforcement and emergency medical services to: • Develop a 700 MHz interoperability channel plan • Encourage ISSI integration or other integrations between regional systems	

*Indicates goal and/or initiative influenced by NGA Regional Meeting, May 2018. Reference Appendix B for complete NGA Roadmap and State Implementation Plan.

	• Guide the planning for state and local agencies to establish conventional/trunking mutual aid channel infrastructure • Guide the planning for the establishment of mutual aid talk groups • Monitor and encourage CAD/data interoperability standards, develop a white paper • Expand interoperability channel plans	
	Publish and distribute best practices document that outlines common interoperability platform*	
Encourage collaboration between Operational Areas and provide opportunities to demonstrate innovative interoperability solutions	Identify planned events and communications exercises that can be used to support collaboration: • Include IT departments as appropriate • Add COML/COMT training and certification to event	Ensures the functionality of interoperable emergency communications technology in each operational area and statewide cohesion
	Reach out to Planning Areas and encourage participation in planned events with special emphasis on law enforcement and EMS agencies	
Leverage CASM and similar shared resources	Identify resources, workflows, and standards necessary to leverage the use of CASM and explore alternative tools	Ensures that California is using a resource to track interoperable emergency communications assets that will support overall efforts in improving interoperability
Develop a framework and regularly test interoperability equipment across all disciplines and encourage local adoption	Identify best practices for training, exercises, and usage	Ensures the functionality of interoperability equipment across all disciplines and localities
	Evaluate relevance for Planning Areas' mutual aid, and define areas of responsibility	
	Develop a testing and operational scenario based on exercise document	
	Review and approve framework	
	Develop messaging and distribution	
Provide interoperable communications training opportunities using qualified instructors*	Identify funding for instructor per diem and travel*	Ensures the best use of interoperable emergency communications resources and improves response in the event of an all-hazards incident
	Leverage ICTAP Technical Assistance to train additional instructors based in California	

*Indicates goal and/or initiative influenced by NGA Regional Meeting, May 2018. Reference Appendix B for complete NGA Roadmap and State Implementation Plan.

	Identify facilities to be used for training	
Establish a working group to oversee all-hazard communication unit certification	Utilize annual interoperable events (e.g., Radio Rodeo Southern California and Northern California) for COML/COMT signoffs, certifications, and training	Ensures a functional Communications Unit
	Identify and invite members to working group to establish meeting schedule and desired outcomes for the working group	Encourages ongoing communication and collaboration across functional areas to track progress toward intended goals and outcomes
Maintain and enhance outreach program to leverage interoperability-related activities, including social media*	Raise the state legislature's awareness of the continued need for interoperable communications support and funding	Ensures legislative support and local participation for interoperability efforts
	Provide local entities with training materials, job aids, and videos	
	Develop a unified message for the legislature	
	Bring legislative members to PSAPs to tour radio, IT, law enforcement, and fire touchpoints	
	Encourage involvement and participation in in regional and local planning	
	Provide a portal or working environment for Planning Areas to share interoperability information	
Develop a mechanism for succession planning*	Invest in recruitment and retention Identify and recruit personnel to engage in interoperability programs and initiatives	Ensures the sustainability of interoperability in the state of California
Promote CASM and similar shared resources	Establish a representative in each Planning Area to serve as the CASM Coordinator	Ensures that CASM will be utilized to support the state's efforts in managing its emergency communications assets
	Identify a representative in each Operational Area to serve as the CASM Coordinator	
Continue to identify a sustainable funding mechanism to support the following priorities*: 1. **Training** 2. **SWIC position** 3. **CalSIEC efforts** 4. **Planning Area support**	Encourage state administration to allocate funding for CalSIEC activities to meet CalSCIP goals	Increases equipment, personnel, and training to support all interoperability efforts in the state
	Training Funding: Perform a risk analysis of not having sufficient trained and qualified personnel in the event of a statewide emergency	
	SWIC Funding: Seek opportunities to document successes and obtain reliable funding for the SWIC position and support staff	
	Develop Interoperable Communications SOPs to follow in the event of a statewide emergency	

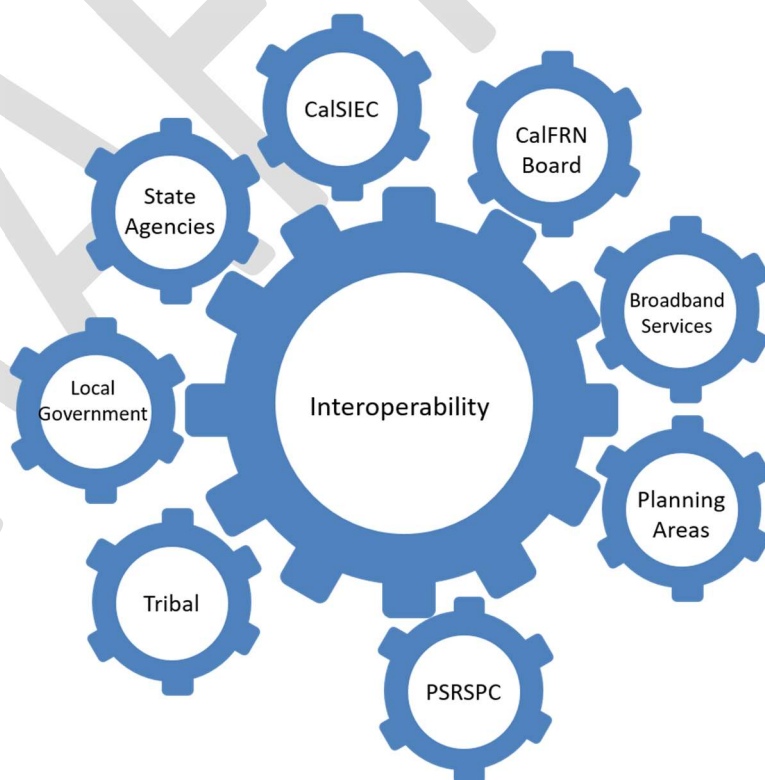|		
	Support Funding: Identify funding to support meetings and travel reimbursement	
	Identify and publish technology refresh and replacement schedules	

GOVERNANCE

Current State of Governance

California's governance over interoperable emergency communications has a unique composition to address the specific challenges to the state, due to its large size and variation in geography and population density from region to region. California relies on a system-of-systems approach across 12 major shared statewide or state-orientated systems, and numerous regional and local systems of varying capabilities. Local and state agencies use frequency bands ranging from very high frequency (VHF) band, ultra-high frequency (UHF), and 800 MHz. The only spectrum state and local agencies have for systems expansion is the 700 MHz band.

California's governance structure is integral, as it continues to support regional systems and foster collaboration to provide state and local emergency responders with fully interoperable communications. The system-of-systems approach facilitates communications regardless of technologies, infrastructures or frequency bands, and will allow transparency among first responders. As a result, California's interoperability governance structure has four key components.

The first is the California 9-1-1 Emergency Communications Branch, which includes the 9-1-1 Advisory Board, and oversees 9-1-1 related issues in the state, including the migration to NG9-1-1.

Interoperable and emergency communications-related efforts in California are strategically driven primarily

Figure 2: California Interoperable Communications*

by CalOES and CalSIEC, which hold final authority over the California SCIP. CalSIEC is the statewide governance body, representative of all disciplines and jurisdictions, and coordinates local stakeholder input, guidance, and recommendations for SCIP maintenance and implementation. The Chairs and Vice-Chairs of the four Planning Areas (Northern, Capital-Bay,

*Source Image: CalOES, California Interoperable Communications

Central, and Southern) comprise CalSIEC's regional governance structure, whose boundaries are based on geography and radio frequency coverage.

The Central Planning Area is currently not represented in CalSIEC, and instead has been focused on tactical areas, as opposed to broader strategy and planning. Efforts will be made to ensure the Central Planning Area's participation on CalSIEC. Three working groups (Policy, Operations, and Technical) also provide stakeholder input and subject matter expertise for plan development and implementation.

The third component of California's interoperability governance is the California First Responder Network (CalFRN). CalFRN is an ad hoc advisory board for CalOES and is primarily concerned with broadband-related issues.

The Public Safety Radio Strategic Planning Committee (PSRSPC) is the final component of California's interoperability governance. The PSRSPC is comprised of state agencies and is authorized through legislation[4] to serve as the state body primarily responsible for developing and implementing a statewide integrated public safety communication system that provides interoperability among State public safety departments, as well as other first responder agencies. PSRSPC is also responsible for coordinating other shared uses of the public safety spectrum, consistent with Federal Communications Commission (FCC) decisions and regulations.

Figure 3 presents California's governance structure.

Figure 3: California Governance

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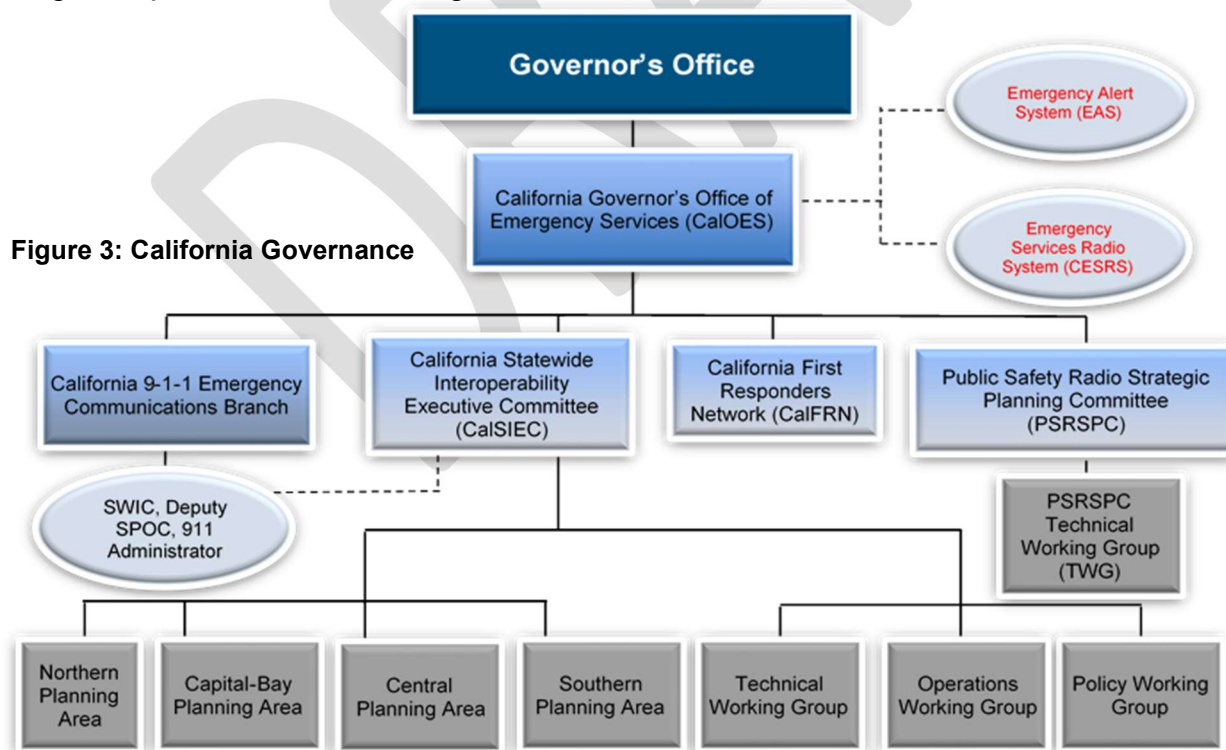
[4] Senate Bill 828 establishes the PSRSPC with duties that include developing and implementing a statewide integrated public safety communication system that facilitates interoperability among state public safety departments and other first response agencies. ftp://www.leginfo.ca.gov/pub/09-10/bill/sen/sb_0801-0850/sb_828_cfa_20090427_123450_sen_comm.html

Streamlining California's Unique Governance Structure

A major priority for California in governance is shifting from a county-by-county model to a more regionally-focused approach. To this end, stakeholders discussed developing regional Tactical Interoperable Communications Plans (TICPs) to consolidate the policies and procedures of the counties within each region and to streamline governance.

Another important aspect of California's approach to interoperability governance is the identification of technology needs and solutions that will assist California stakeholders in the development and implementation of their planning efforts. To support comprehensive governance efforts across the state, it will be critical that the Planning Areas continue to build relationships with other public safety organizations as well as finding other opportunities for further contact and collaboration. The use of technology may offer yet another possibility in the form of information sharing and interoperability opportunities, such as webinars or video teleconferences.

California's governance goals and initiatives are as follows:

Goals	Initiatives
Streamline interoperability planning efforts	• Continue coordinated relationships across Planning Areas and with CPRA, NAPCO, CalNENA and other public safety organizations (e.g., CSSA, EMSA, Fire Chiefs, Police Chiefs, etc.) and identify points of contact • Identify and document technology needs • Adopt technology to increase participation for information sharing to assess interoperability opportunities (e.g., webinar/video teleconference) • Develop and/or implement advanced planning efforts
Review, update, ensure consistency, and distribute policies and procedures as necessary, to all levels and disciplines (including IT)	• Conduct annual review of Cal-IFOG, CLMA (red and blue), CalOES policy documents, and CalSIEC and CalFRN charters to ensure consistency across documents • Review and update policies and procedures with Planning Areas • Ensure communications annex of emergency operations plans are consistent with aforementioned documents

TECHNOLOGY

Current State of Technology

The focus of California's plan to improve interoperability is a vision of a system-of-systems integrating existing public safety communications networks. The state works to coordinate technology purchases at a regional level and enhance connectivity through interconnecting existing legacy architectures with standards-based networks. Many existing communications systems within California have reached or exceeded their life expectancy; local radio systems require funding, additional channels, and modernization.

Land Mobile Radio (LMR)

California's LMR is a system-of-systems network approach across 12 major shared statewide or state-oriented systems, and numerous regional and local systems of varying capabilities. Local and state agencies use all available public safety frequency bands including VHF, UHF and 800 MHz. Some state and local agencies have started building 700 MHz. systems.

There have been robust efforts around the California Interoperability Field Operations Guide (Cal-IFOG) and efforts to establish more shared resources and trunking. A documented process for trunking LMR resources will be needed to facilitate this process, as well as an outreach effort to ensure that all stakeholders are informed of the fees and associated costs.

Desired State

- ISSI integration with Mission Critical Push to Talk (MCPTT)
- Statewide mutual aid load channel for law enforcement ("LAWSCOPE") and EMS
- Identify broadband best practices
- NG9-1-1 fully deployed by end of 2022
- Location Accuracy for NG9-1-1 with identified latitudinal and longitudinal coordinates to include subscriber addresses
- Identify the pros and cons of combining NG9-1-1 and Alerts & Warnings
- Identify educational resources for law enforcement to inform command staff on response

Figure 4: Desired State of Technology

Stakeholders are currently addressing the question of whether they need a state defined ISSI system of 700 MHz managed for the state, or if it would be better to give the state a channel on the radio of each local agency.

Broadband

Cal OES has established a Broadband Services Division (CalBSD) within the 9-1-1 Emergency Communications Branch, as well as the California First Responder Network Authority (CalFRN) Board. Cal OES is currently in discussion with a broadband provider for broadband adoption and is in the initial stages of broadband integration into the communications ecosystem. CalFRN is currently working on identifying the best practices for implementation during these discussions.

Cal OES will continue to work with each County/Operational Area to identify coverage needs, and prepare for emergency communications technology transitions.

9-1-1/Next Generation 9-1-1

Next Generation 9-1-1 (NG9-1-1) has been deployed in some areas across the state and a defined NG9-1-1 plan exists. The NG 9-1-1 implementation plan focuses on providing a reliable, resilient NG 9-1-1 core service for California. Refer to WWW.caloes.ca.gov/911 for a copy of the complete plan.

Alerts & Warnings

Alerts & warnings are locally managed. A State Emergency Management Systems (SEMS) working group which includes 30-40 stakeholders from around the state is developing best practices for alerts and warnings in response to a legislative inquiry. The SEMS working group's work will culminate in a document that will help define the roles of CalOES and local agencies regarding alerts and warnings.

Technology goals and initiatives include the following:

Goals	Initiatives
Develop a common interoperability platform that leverages existing technology and infrastructure, and provides a migration toward emerging technologies	• Identify basic voice interoperability needs based on real-world events and experiences • Establish a CalSIEC Technology Working Group (with special emphasis on law enforcement and Emergency Medical Services) to: o Develop a 700 MHz conventional interoperability channel plan o Explore and encourage ISSI integration between regional systems and conventional interoperability channels o Develop guidelines for state and local agencies to establish conventional mutual aid channel infrastructure o Encourage regional trunking systems to establish mutual aid talk groups o Consider the role of CADdata interoperability o Review and revise interoperability channel plans • Publish and distribute a best practices document that outlines a common interoperability platform
Encourage collaboration between Operational Areas and provide opportunities	• Identify planned events and communications exercises that can be used to support

to demonstrate innovative interoperability solutions	collaboration and encourage collaboration and coordination by Operational Areas ○ Include IT departments as appropriate ○ Add COML/COMT training and Position Task Book review ○ Special emphasis on law enforcement and EMS personnel
Leverage CASM and similar shared resources	• Identify any additional application features and training opportunities to enhance CASM's use by CalSIEC, Planning Areas and Operational Areas • Explore and review any alternative tools

TRAINING & EXERCISES

Current State of Training & Exercises

California's approach to training and exercises ensures that emergency responders are familiar with interoperable and emergency communications equipment and procedures; and are better prepared for responding to real-world incidents.

The training and exercise needs of CalSIEC's four Planning Areas vary due to geography, population density, and existing mutual aid agreements. Many of the regional and local systems conduct weekly tests; however, documentation of these tests varies for local agencies. Regular training and usage of interoperable systems and assets is important to maintain equipment in serviceable condition, as well as to keep users fully trained on available equipment in preparation for a real-world incident.

To promote relationship-building among agencies, the state coordinates closely with each Planning Area for the availability of resources to support training and exercise opportunities, in addition to California's annual statewide Golden Guardian Exercise. For example, the Northern Planning Area supports local Communications Unit Leaders (COMLs), Communications Technicians (COMTs), and dispatcher training events.

Training and exercises goals and initiatives include the following:

Goals	Initiatives
Develop a framework and regularly test interoperability equipment across all disciplines and encourage local adoption	• Identify best practices for training, exercises, and usage • Evaluate training and exercises for relevance against Planning Areas needs and potential for major incidents • Develop testing and operational scenarios for use in training and exercises

	• Review and approve a statewide interoperability test framework • Develop messaging and distribution plan
Provide interoperable communications training opportunities using qualified instructors	• Identify funding source for instructor per diem and travel • Leverage ICTAP Technical Assistance to train additional instructors • Provide facilities for training
Establish a working group to oversee all-hazards Communications Unit credentialing	• Utilize annual interoperable events (e.g., Radio Rodeo Southern California and Northern California) for COML/COMT training and Position Task Book signoffs • Identify and invite members to working group to establish desired outcomes

Improving Training & Exercises in California

Training and exercises are critical to ensuring that the goals of the SCIP are put into practice across the state and that responders adopt and familiarize themselves with interoperable emergency communications technologies, systems, and operating procedures in the state.

Inadequate training and exercises make up a notable portion of the challenges faced by California. There is a need for increased training opportunities, as well as the development of exercise scenarios and streamlined training guides, to become widely accessible.

These efforts are ongoing and include potentially developing a series of online training courses made available through a web-based online training portal.

OUTREACH & INFORMATION SHARING

Current State of Outreach & Information Sharing

Educational outreach is a major component of California's interoperability strategy. Such outreach is integral to ensuring that relevant information filters down to the necessary end users. California's initiative to provide local entities with training materials, job aids, and videos is reflected in its efforts to promote and increase the utilization of the Communication Assets Survey and Mapping (CASM) Tool by stakeholders within the Planning Areas and Operational Areas.

Outreach is also an important aspect of succession planning when used as a tool to recruit and retain qualified personnel to increase the sustainability of California's interoperable emergency communications systems and institutions.

To support legislative awareness, the SWIC conducts ongoing briefings on the status of interoperability in the state. However, there currently is no protocol for content dissemination and the SWIC seeks to enhance and streamline methods of communication by developing a targeted approach, with concise and consistent language to engage the state legislature.

Outreach and information sharing goals and initiatives include the following:

Goals	Initiatives
Maintain and enhance outreach program to leverage interoperability-related activities, including social media	- Raise the state legislature's awareness of the need for interoperable communications - Provide local entities with training materials, job aids, and videos - Develop a unified message for the legislature - Bring legislative members to PSAPs to tour radio, IT, law enforcement, and fire touchpoints - Provide a portal or working environment for Planning Areas to share interoperability information
Develop a mechanism for succession planning	Encourage investment in recruitment and retention
Promote CASM and similar shared resources	- Establish a representative in each Planning Area to serve as the CASM Liaison - Identify a representative in each Operational Area to serve as the CASM Liaison

LIFE CYCLE FUNDING

Current State of Life Cycle Funding

Funding for interoperability efforts in California is locally managed. Funding continues to be an ongoing challenge that the state must contend with in its efforts to achieve its interoperability goals and initiatives. The state administration is one potential avenue for garnering additional funding support.

California stakeholders plan to develop a risk analysis to demonstrate the critical need to fiscally support ongoing training and the SWIC position.

A lack of long-term funding also affects planning and progress in each lane of the Interoperability Continuum and prohibits the state from adequate planning, or keeping up with, the pace of emerging technology.

California's life cycle funding goals and initiatives include the following:

Goals	Initiatives
Continue to identify a sustainable funding mechanism to support the following priorities: • *Training* • *SWIC position* • *CalSIEC efforts* • *Planning Area support*	• Encourage state administration to allocate funding for CalSIEC activities • Training Funding: Identify the risk of not having trained personnel in the event of a statewide emergency • SWIC Funding: Seek opportunities to document successes and obtain reliable funding for the SWIC position and support staff • Develop Interoperable Communications SOPs to follow in the event of a statewide emergency • Support Funding: Identify funding to support meetings and travel reimbursement • Identify and publish technology refresh and replacement schedules

IMPLEMENTATION, EVALUATION, PROGRESS MEASUREMENT AND DHS SUPPORT

The SWIC serves as the chief administrator of the SCIP and is responsible for tracking progress towards achieving the SCIP's goals. The CalSIEC will add the strategies assigned to its committees as formal agenda items for review and oversight during regular meetings. The SWIC and working group members will provide status updates and coordinate collaborative action and planning to ensure continued progress.

CalSIEC will also conduct a thorough review of the SCIP on a biennial basis to update strategies and tactics to address identified needs and advancements involving statewide emergency communications capabilities.

Each year, OEC works with all 56 states and territories in measuring progress toward implementing SCIP goals/strategies through the annual SCIP Snapshot process. Findings from the reporting helps identify successes and challenges in meeting goals, and helps OEC provide targeted technical assistance in the form of training and resources offered through its Interoperable Communications Technical Assistance Program (ICTAP).

ICTAP offerings of interest include:

- Formal Governance Documentation Review, Assessment and Development
- Communications Unit Planning and Policies, Project Management
- Tactical Interoperable Communications Plan (TICP) Field Operations Guide (TIC-FOG) Review and Development
- Next Generation 9-1-1/Strategic Planning Support
- Communications Unit Leader (COML) Training
- Communications Unit Technician (COMT) Training
- Communications Assets Survey and Mapping (CASM) Tool – Next Generation

Requests for technical assistance are coordinated through the California SWIC on an annual basis.

For more information, states/territories are encouraged to contact OEC at: SCIP@hq.dhs.gov.

APPENDIX A: SCIP Implementation Plan

Goals		Initiatives		Owner(s)	Completion Date	Measurement
Governance	1. Streamline interoperability planning efforts	1.1	Continue coordinated relationships across Planning Areas and with CPRA, NAPCO, CalNENA and other public safety organizations (e.g., CSSA, EMSA, Fire Chiefs, Police Chiefs, etc.) and identify points of contact	SWIC, Planning Areas	August 2019; annually thereafter	• SWIC and CalOES staff attend meetings and functions • SWIC and CalOES staff work with groups and organizations to present updates and status
		1.2	Identify and document technology needs*	CalSIEC	Quarterly; 1-2 years	• Planning Areas identify needs and forward to CalOES and SWIC
		1.3	Identify technology solutions*	CalSIEC	6 months (following 1.2); ongoing	• Leverage NCSWIC, NASNA and NENA to identify technology solutions • Inform Planning Areas of technology solutions
		1.4	Adopt technology to increase participation for information sharing to assess interoperability opportunities (e.g., webinar/video teleconference)	CalSIEC	December 2018	• Increase use of webinar capabilities • Provide technology resources to Planning Areas
		1.5	Develop and/or implement planning efforts	Planning Areas	Completed by January 2019; annually thereafter	• TBD
	2. Review, update, ensure consistency, and distribute policies and procedures as necessary, to all levels and disciplines (including IT)	2.1	Conduct annual review of Cal-IFOG, CLMA (red and blue), CalOES policy documents, and CalSIEC and CalFRN charters to ensure consistency across documents	CalOES	December 2018; annually thereafter	• Completed annual review of Cal-IFOG and other documents • Updated versions of Cal-IFOG and other documents, posted as needed
		2.2	Review and update policies and procedures with Planning Areas	CalOES/ Planning Areas	March/April 2019; annually thereafter	• TBD
		2.3	Ensure communications annex of emergency operations plans are consistent with aforementioned documents	SWIC, Planning Areas	August 2019 and annually thereafter	• SWIC and CalOES staff attend meetings and functions • SWIC and CalOES staff work with groups and organizations to present updates and status

*Indicates goal and/or initiative influenced by NGA Regional Meeting, May 2018. Reference Appendix B for complete NGA Roadmap and State Implementation Plan.

Technology	3. Develop a common interoperability platform that leverages existing technology and infrastructure, and provides a migration toward emerging technologies*	3.1 Identify basic voice interoperability needs based on real-world events*	SWIC, CalSIEC	March 2019	• Identify needs by working with Planning Areas • Publish Interoperability needs after vetting with Planning Areas
		3.2 Establish CalSIEC Technology Working Group focusing on law enforcement and emergency medical services to: • Develop 700 MHz interoperability channel plan and encourage ISSI integration • Guide the planning for state and local agencies to establish conventional/trunking mutual aid channel infrastructure • Guide the planning for the establishment of mutual aid talk groups • Monitor and encourage CAD/data interoperability standards, develop a white paper • Expand interoperability channel plans	SWIC, CalSIEC	December 2018	• Receive CalSIEC authorization to form the Working Group • Develop charter • Establish working group and assign members
		3.3 Publish and distribute best practices document that outlines common interoperability platform*	CalSIEC Technology Working Group	December 2019	• TBD
	4. Encourage collaboration between Operational Areas and provide opportunities to demonstrate innovative interoperability solutions	4.1 Identify planned events and communications exercises that can be used to support collaboration: • Include IT departments as appropriate • Add COML/COMT training and certification to event	SWIC, Planning Areas	Annually	• Establish location to store the data • Develop the data needed for planned events • Develop and maintain data
		4.2 Reach out to Planning Areas and encourage participation in planned events with special emphasis on law enforcement and EMS agencies	CalSIEC	Annually	• Update the contacts for Planning Areas • Receive data from Planning Areas and other sources • Push data out using contacts
	5. Leverage CASM and similar shared resources	5.1 Identify resources, workflows, and standards necessary to leverage the use of CASM and explore alternative tools	CalSIEC	July 2019	• Have Planning Area assign a CASM Liaison • Have CalOES CASM Liaison work with Planning Areas • By 2020, achieve a 25% level for Operational Area contacts • By 2021, achieve a 50% level for Operational Area Contacts

*Indicates goal and/or initiative influenced by NGA Regional Meeting, May 2018. Reference Appendix B for complete NGA Roadmap and State Implementation Plan.

Training & Exercises	6. Develop a framework and regularly test interoperability equipment across all disciplines and encourage local adoption	6.1	Identify best practices for training, exercises, and usage	CalSIEC Technology Working Group	December 2019	• TBD
		6.2	Evaluate relevance for Planning Areas' mutual aid, and define areas of responsibility	Planning Areas	July 2019	• TBD
		6.3	Develop a testing and operational scenario based on exercise document	SWIC	October 2018	• TBD
		6.4	Review and approve framework	CalSIEC	TBD	• Successful Review by CalSIEC
		6.5	Develop messaging and distribution	SWIC	TBD	• TBD
	7. Provide interoperable communications training opportunities using qualified instructors*	7.1	Identify funding for instructor per diem and travel*	SWIC	January 2019	• Leverage existing grant programs to identify funding source • Work with Planning Areas to identify trainers, course locations and needs
		7.2	Leverage ICTAP Technical Assistance to train additional instructors based in California	SWIC	January 2019	• Solicit needs from Planning Areas • Request ICTAP support
		7.3	Identify facilities to be used for training	Planning Areas	January 2019	• As courses are identified, work with Planning Areas to identify course location
	8. Establish a working group to oversee all-hazards communications unit certification	8.1	Utilize annual interoperable events (e.g., Radio Rodeo Southern California and Northern California) for COML/COMT signoffs, certifications, and training	SWIC/ Planning Areas	Annually	• Receive CalSIEC authorization to form the Working Group • Develop charter • Establish working group and assign members
		8.2	Identify and invite members to working group to establish meeting schedule and desired outcomes for the working group	SWIC with support from the Planning Areas	January 2019	• TBD

*Indicates goal and/or initiative influenced by NGA Regional Meeting, May 2018. Reference Appendix B for complete NGA Roadmap and State Implementation Plan.

Outreach & Information Sharing	9. Maintain and enhance outreach program to leverage interoperability-related activities, including social media*	9.1 Raise the state legislature's awareness of the continued need for interoperable communications support and funding	SWIC	June 2019; annually thereafter	• Invite legislators into PSAP • Invite legislators to Sacramento for yearly event
		9.2 Provide local entities with training materials, job aids, and videos	SWIC/ Planning Areas	October 2018	• TBD
		9.3 Develop a unified message for the legislature	SWIC, CalSIEC	June 2019	• *Note*: Collaborative effort with CalSIEC, CalFRN, 9-1-1 Advisory Board and PSRSPC
		9.4 Bring legislative members to PSAPs to tour radio, IT, law enforcement, and fire touchpoints	Planning Areas	June 2019	• TBD
		9.5 Encourage involvement and participation in in regional and local areas	SWIC, CalSIEC		• *Note*: Collaborative effort with CalSIEC, CalFRN, 9-1-1 Advisory Board and PSRSPC
		9.6 Provide a portal or working environment for Planning Areas to share interoperability information	SWIC, CalSIEC	June 2019	• TBD
	10. Develop a mechanism for succession planning*	10.1 Invest in recruitment and retention Identify and recruit personnel to engage in interoperability programs and initiatives	Planning Areas	Ongoing; discussed quarterly	• TBD
	11. Promote CASM and similar shared resources	11.1 Establish representative in each Planning Area to serve as the CASM Coordinator	SWIC/ Planning Areas	July 2019	• TBD
		11.2 Identify representative in each Operational Area to serve as the CASM Coordinator	Planning Area CASM Liaison	July 2019	• TBD
Life Cycle Funding	12. Continue to identify a sustainable funding mechanism to support the following priorities*: • Training • SWIC position • CalSIEC efforts • Planning Area support	12.1 Encourage state administration to allocate funding for CalSIEC activities to meet CalSCIP goals at	SWIC, CalSIEC	March 2019; annually thereafter	• Request funding • Funding granted
		12.2 Training Funding: Perform a risk analysis of not having sufficient trained and qualified personnel in the event of a statewide emergency	SWIC	March 2019; annually thereafter	• TBD
		12.3 SWIC Funding: Seek opportunities to document successes and obtain reliable funding for the SWIC position and support staff 12.4 Develop Interoperable Communications SOPs to follow in the event of a statewide emergency	SWIC, CalSIEC	March 2019; annually thereafter	• Funding source identified • Funding request submitted • Funding request approved
		12.5 Support Funding: Identify funding to support meetings and travel reimbursement	SWIC	March 2019; annually thereafter	• TBD
		12.6 Identify and publish technology refresh and replacement schedules	SWIC	March 2019; annually thereafter	• Develop best practices • Publish best practices

Indicates goal and/or initiative influenced by NGA Regional Meeting, May 2018. Reference Appendix B for complete NGA Roadmap and State Implementation Plan.

APPENDIX B: NGA Roadmap

	Ecosystem	Current State	Future State	Challenges/Barriers	Strategy/Goals

Governance Elements	**Planning & Coordination** — SWIC, SIGB/SIEC, SCIP, SPOC, EMA, 911 Administrator, 911 Board, Local Gov't, Tribal, Law Enforcement, EMS, & Fire	• Outreach Messaging is a strong Point
		• Emergency Support Function #2 (ESF 2)
		• Four Planning Areas; 5 UASIs
		• Multiple governance boards managed by Cal OES
		  o No hierarchy
		  o SWIC consistent presence
		• Development of formal process to recognize COMLs/COMTs
		• SCIP recognized strategic planning document within the state
		• Comprehensive NG911 plan
		• Cal OES fiscal operation reviews for PSAPs
		• Understand what is available for ops from FirstNet
			• Update SCIP goals
			  o Interaction with Legislature
			  o Single body for Interop
			  o Get others involved
			  o Planning functions
			  o TICP's regional development
			• Codify staff positions currently funded through state grant funding
			• Combine PSRSPC, CALSIEC, & CALFRN
				• FirstNet – Level set
				  o Know what is available today for operations
				  o California a majority of the rural parts of the state do not have ATT coverage
				  o Need better coordination with FirstNet Built by ATT for quarterly meetings
				• Integration of FN into 911 Centers – California would like specifics on this from FirstNet
				• Too many in-person meetings for SWIC to attend himself
				• Membership gaps
				• Agency-to-Agency communication needs improvement
					• COMU Program – elevate the Communications section efforts
					• Scope of Law - working a Systems-of-Systems approach for the SCIP
					• Future merger of PSRSPC with SIEC long term – short term goal merge CALFRN with SIEC

	SOPs — LMR, LTE, 911/NG911, A&W, Social Media, Integration	• Regions updating Tactical Interoperable Communications Plans • Cal OES manages Cal-IFOG • Cal OES manages Operations Manual for PSAPs	• Develop rules of use for FirstNet/Broadband services • Develop a formal state certification program for COMU • TERT resources added to ROSS • Develop a Cal-IFOG App	• Awaiting legal review for Cal-IFOG app development • No hardcopies of current Cal-IFOG	• Look at recognition for new technologies – try not to stovepipe

	Training & Exercises — LMR, LTE, 911/NG911, A&W, Social Media, Integration	• Good Portfolio (Real World)
		  o Fleet Week
		  o Radio Rodeo
		• SWIC has training resource to support communications training, currently no funding to support per diem/travel costs
		  o Determine if grant funds can be used
			• Starting TA for defined COMU
			• Solidify training budget to cover per diem & lodging costs
			• Create a way for locals to train on how to use interoperability channels
				• How to formalize resources in COMU – IMAC
				• Integration of All Hazards – Fire Scope – NWCG
				• Test Plan cannot be formed when technologies are being used
					• Coordination with Fire Scope within California
					• Formal State Certification for COMU – goal for completion this fall

Usage	LMR LTE 911/NG911 A&W Social Media Integration	• Cal OES Public Safety techs get request through Resources Ordering & Status System (ROSS) to support incidents • Cal OES - support counties & cities with communications gaps • Over 10,000 responders supported fire events	• ISSI Integration • Satellite phone usage/training	• Rapid growth – follow-up messaging and consistency • Connect separate systems (Lily Pad)	• Social media influences all major event notifications – usually prior to 911 notifications • Have a separate section set up to work this area – relatively new

Funding & Acquisitions	LMR
	LTE
	911/NG911
	A&W
	Social Media
	Integration
		• Cal OES has fee for service
		  o Coordinate across agencies to find efficiencies
		  o Advertise available support to local agencies
		  o State agency progress on technology roadmap
		• Submitted BCP to codify staff positions
		• LMR must be funded
		• Interest in using ISSI connections
		• SEIC gathers all TA requests & presents to planning area
		• Grant funding goes through Finance Department not the SEIC
		• One pending TA Request – One approved
		• UASI Regions – SF/Riverside/LA/SD/San Jose
			• Program sustainment post SLIGP funding
			• Solve long-term funding model for 9-1-1
			• Conduct an analog to digital conversion – CAPSNet
			• Technology roadmap for services
				• Grants/SAA
				• Awaiting decisions on several BCPs
				• Funding the CalSIEC – travel, VTC, regional meetings
				• LMR Messaging with Stakeholders/Political landscape
					• Funding INTEROP
					• TERT Resources
					• Travel budget for Instructors

Other	Political Landscape Legislation Encryption Cybersecurity	• Cornerstone activities that help support movements • In-person workshops – more involved • Testing comms at local level • Outreach and messaging strong point • Comms Section change is positive • Cal OES has a 24/7/365 Warning Center	• Clarify the regulatory/statutory needs for NG911 • Conduct succession planning	• Challenges with politics and process/procedures due to size and population of the state • Active fire season takes focus from initiatives • Election year	• Grants Team supporting Cal OES - is seen as a best practice • SOCAL Fleet Week • ESF2 support best practice • Need work with cybersecurity

State Implementation Plan

Activity		Target Completion	Owner	Status	Reporting Trigger
1	*Interoperability Channel Training for Locals*		PM, SW, BC	Some interoperability channels have roll calls/test cycle	
1.1	*Sub-Activity*				
1.2	*Sub-Activity*				
2	*SAT Phone usage*		PM, SW		
2.1	*Scope training objectives*				
2.2	*Integrate as tactical exercise into annual training program*				
3	*Training Budget*		PM	Need a plan to support trainers' per diem	
3.1	*Integrate with CSTI*				
3.2	*Implement identified path forward*				
4	*Regulatory/statutory needs for NG9-1-1*		MM, PM, BC	Needs are known, champion in place, process is moving forward	
4.1	*Sub-Activity*				
4.2	*Sub-Activity*				
5	*Long-term Funding Model for 9-1-1*	3 months (Next steps will be known by July 01)	MM, PM, BC	Goal is to change to a flat fee	
5.1	*Await decision on BCP* • *Resubmit in January if not approved in July*				
6	*Analog to Digital Conversion*	3 months (next steps will be known by July 01)	MM, PM, NA		
6.1	*Await BCP approval* • *Funding and hiring authority*				
6.2	*RFP process*				
6.3	*Hire staff – engineers, telecommunication technicians*				
6.4	*Select vendor*				
6.5	*Augment staff*				
7	*Succession planning*	6 months to 12 months	PM (BC, SW, NA)		
7.1	*Train new staff*				
8	*Cal-IFOG Application Development*	6 months	BC		
8.1	*Complete legal review*				
8.2	*App development through OEC TA*				
9	*COMU Certification at State Level*	6 months (fall)	PM	Already have a champion and relationships; this will be supported through an OEC TA	

State Implementation Plan

Activity		Target Completion	Owner	Status	Reporting Trigger
9.1	Coordinate with CSTI – CA State Training Institute • Develop curriculum • Levels of certification				
9.2	Obtain funding to support training events				
9.3	Implementation				
10	**Codify positions and governance board travel currently funded through grants**	12 months	MM, PM, BC	Travel funds needed to attend CalSIEC and CalFRN meetings	
10.1	Prepare budget change proposal for permanent funding for positions				
10.2	Send BCP through legislative cycle (after Director approval) and obtain Governor's signature • Broadband (January 1st budget cycle) • Tactical (January 1st budget cycle) • Deputy SWIC (TBD)				
11	**Broadband rules of use/application development**	12 months	PM, BC		
11.1	Define priority levels, especially daily use				
11.2	Develop operational procedures/policies for implementation				
12	**TERT added to ROSS**	12 months	PM, BC, SW		
12.1	Define what resources would accompany TERT • Skill/capability matching				
12.2	Define mission assignment				
13	**Governance Board merger(s)**	12+ months	MM, PM		
13.1	Complete analysis of merger options				
13.2	Implementation through: • Legislative change • Executive order • Combination				

OEC Assistance

Activity		Target Completion	OEC Owner	Status	Notes
Technical Assistance	COMU Assistance	Fall 2018	Dan Wills		
	SCIP workshop	June 5 - 6, 2018			
	Connecting state systems through ISSI				

State Implementation Plan

	Activity	Target Completion	Owner	Status	Reporting Trigger
Advisement & Resources	SCIP Update	June 4-5, 2018	ICTAP Branch		
	There is currently one pending request for TA that was not approved, but this one and the one approved are both shovel-ready. Cal OES needs OEC's help in moving those requests forward.			– OEC approved one of the SWIC's TA's for Mono County	
Other Support	Help with Printing IFOG	Working Strategy			
	(Discussion Only)				

APPENDIX C: List of Acronyms

APCO	Association of Public Safety Officials International
CAD	Computer-Aided Dispatch
CalFRN	California First Responders Network
Cal-IFOG	California Interoperability Field Operations Guide
CalNENA	California Chapter of the National Emergency Number Association, Inc.
CalOES	California Governor's Office of Emergency Services
CalSCIP	California Statewide Communications Interoperability Plan
CalSIEC	California Statewide Interoperability Executive Committee
CASM	ICTAP's Communication Assets Survey and Mapping Tool
CLMA	California Law Mutual Aid publications (red and blue)
COML	Communications Unit Leader
COMT	Communications Unit Technician
COMU	ICS Communications Unit
CPRA	California Public Records Act
CSSA	California State Sheriffs Association
DHS	Department of Homeland Security
EMS	Emergency Medical Services
EMSA	Emergency Medical Services Authority
FEMA	Federal Emergency Management Agency
FirstNet	First Responders Network Authority
ICTAP	Interoperable Communications Technical Assistance Program
IPAWS	Integrated Public Alert and Warning System
ISSI	Project 25 Inter RF Subsystem Interface
IT	Information Technology
LMR	Land Mobile Radio
MCPTT	Mission Critical Push to Talk
MHz	Megahertz
NAPCO	Northern California Chapter of the Association of Public Safety Communications Officials International
NECP	National Emergency Communications Plan
NG9-1-1	Next Generation 9-1-1

NGA	National Governors Association
OEC	Dept of Homeland Security's Office of Emergency Communications
P25	Project 25
PSAP	Public Safety Answering Point
PSRSPC	Public Safety Radio Strategic Planning Committee
SCIP	Statewide Communications Interoperability Plan
SEMS	Standardized Emergency Management System
SOP	Standard Operating Procedure
SPOC	Single Point of Contact
SWIC	Statewide Interoperability Coordinator
UHF	Ultra High Frequency
VHF	Very High Frequency